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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,816

06/13/2007

Soon Mo Hwang

2050-12

5120

52706

7590

11/25/2008

IPLA P.A.

3580 WILSHIRE BLVD.

17TH FLOOR

LOS ANGELES, CA 90010

EXAMINER

LAUX, DAVID J

ART UNIT

PAPER NUMBER

4193

MAIL DATE

DELIVERY MODE

11/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,816	<b>Applicant(s)</b> HWANG ET AL.	
	<b>Examiner</b> David Laux	<b>Art Unit</b> 4193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6/13/2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/10/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

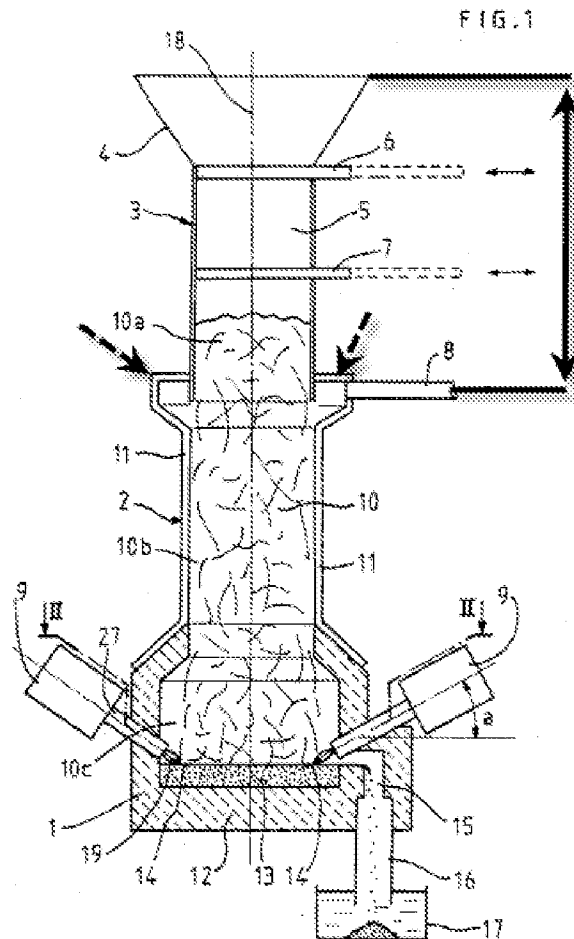
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,831,944 to Durand et al in view of US 7,228,806 to Dueck et al.

3. '944 discloses a cyclonic plasma pyrolysis/vitrification system pyrolyzing and vitrifying waste materials into exhaust gas and slag using a plasma torch, the system comprising: a main reactor (10) having a waste inlet (18) supplying waste materials, an exhaust gas outlet (8) discharging exhaust gas, and a slag outlet (15) discharging slag (13); a plasma torch (9) inclined at a predetermined angle (a) with respect to the internal bottom surface (12) of the main reactor (10) to give a maximum circulating power to the exhaust gas (Col. 7, lines 66-68; Col. 8, lines 1-2), pyrolyzing and vitrifying the waste materials (Col. 1, lines 1-2);; a slag discharger (17) connected to the slag outlet (15) of the main reactor (10), discharging the slag (13) to the outside; wherein the plasma torch (9) circulates the exhaust gas in the main reactor (10) with a maximum circulating power by strong plasma jet (Col. 7, lines 66-68; Col. 8, lines 1-2), and makes flyashes contained in the circulating exhaust gas to be melted after being absorbed into melted materials of waste materials in both inner walls (1) and bottom surface (12) of the main reactor by a centrifugal force (Col. 3, lines 47-48), wherein the slag discharger (17) is

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formed just under the plasma torch (9), wherein the plasma torch (9) is inclined at the angle (a) ranging from 20 to 40 degrees with respect to the bottom surface (12) of the main reactor (10) (Col. 5, lines 1-4), wherein the cyclonic plasma pyrolysis/vitrification system includes a waste inlet (18) and an exhaust gas outlet (8) having a designated distance therebetween in the main reactor (see unbroken arrow on Fig. 1 below), and further including a separator wall with a designated length formed therebetween (See broken arrows on Fig. 1 below).



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4. '944 makes reference to but does not disclose an auxiliary reactor connected to the exhaust gas outlet of the main reactor, discharging the exhaust gas to the outside. '806 teaches a gasifier with an auxiliary reactor (40) connected to the exhaust gas outlet of the main reactor (20), discharging gas to the outside (Col.6, lines 18-21). It would have been obvious to one skilled in the art at the time of invention to combine the auxiliary reactor of '806 with the cyclonic plasma pyrolysis/vitrification system of '944 in light of the reference made to such an auxiliary reactor in the specification of '944 (Col. 3, lines 34-37).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over '944 in view of '806, as applied to claim 1-3, and 5 above, and further in view of US 8,883,442 to Groszek et al.

6. '944 discloses a cyclonic plasma pyrolysis/vitrification system wherein the exhaust gas outlet is disposed in the center of an inner wall of the main reactor, but fails to disclose an exhaust gas outlet disposed in the center of the circulating exhaust gas. '442 teaches a cyclonic pyrolysis system wherein the exhaust gas outlet (10) is disposed in the center of the circulating exhaust gas in the center of an inner wall of the main reactor (1). It would have been obvious to one skilled in the art at the time of invention to combine the cyclonic plasma pyrolysis/vitrification system of '944 with the teaching of '442 because such a modification would have produced the added benefit of less particulate matter in the exhaust because the centrifugal force of the swirling exhaust would have forced any remaining particulate in the exhaust to the outer walls of the chamber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Laux whose telephone number is (571) 270-7619. The examiner can normally be reached on M-R 7:30-5, F 7:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. L./  
Examiner, Art Unit 4193

/Derris H Banks/  
Supervisory Patent Examiner, Art  
Unit 3725

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